

## **Recovery of rowing sprint performance after high intensity strength training**

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**T. Gee**

There is minimal research on recovery of sports specific functional performance after multi-joint high intensity strength training. The aim of this study was to establish the time course of recovery of rowing sprint performance and muscle function following a high intensity strength training session. With institutional approval, ten club rowers (mean±s, 20.4±2.8 y, 86.7±9.9 kg, 192.8±6.2 cm) with Olympic lifting and conventional resistance training experience participated in a repeated measures study. Participants performed baseline measures of 4 separate counter-movement jumps (CMJ) and a 250 m rowing ergometer sprint (stroke rate fixed at 30 spm). Twenty-four hours after baseline, participants performed a high intensity strength training (ST) session (3–4 sets 6–8 reps @ 75–85% 1RM for snatch, clean, back squat, romanian deadlift, bench press, bent over row and 3 sets 6–15 reps with 10 kg weighted sit-ups). Rowing sprint tests and jumps were repeated 24, 48 and 72-h post ST. Ear-lobe capillary samples for determination of creatine kinase (CK) and lactate dehydrogenase (LDH) were assessed pre ST and 1, 24, 48 and 72-h post. A visual analogue scale (VAS) for soreness rating (0–10) was also measured (Avery et al., 2003: *Journal of Strength and Conditioning*, 17, 801–809). Rowing performance decreased significantly 24-h post ST compared to baseline (44.1 s versus 44.6 s;  $P < 0.01$ ,  $Z^2 < 0.001$ ) but returned to pre-test values at 48-h. There were no significant changes in CMJ. Soreness rating was significantly greater at 1 h (VAS 4.9,  $P < 0.001$ ), 24 h (VAS 5.6,  $P < 0.001$ ) and 48 h (VAS 4.1,  $P < 0.006$ ) compared to baseline (VAS 0.7). Creatine kinase significantly increased from 245±192 U/L at baseline to 513±311 U/L at 24 h ( $P < 0.02$ ); but returned to baseline after 48 h. There was a non-significant change in LDH at any time point. High intensity strength training produced a significant decrease in sports specific functional performance 24-h post ST. A period of 48-h was sufficient for recovery of specific muscle function and CK to baseline. These findings provide valuable information regarding recovery of athletic performance and muscle function following high intensity strength training and could assist in achieving optimal scheduling of training.